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Grade 1

Sample Tasks for PreK-8, developed by New York State teachers, are clarifications, further explaining the language and intent of the associated Performance Indicators. These tasks are not test items, nor are they meant for students' use.

Strands	
Process	Content
Problem Solving	Number Sense and Operations
Reasoning and Proof	Algebra
Communication	Geometry
Connections	Measurement
Representation	Statistics and Probability

Problem Solving Strand

Students will build new mathematical knowledge through problem solving.

1.PS.1 Explore, examine, and make observations about a social problem or mathematical situation

1.PS.1a

Discuss everyday situations in which length may need to be measured.

1.PS.1b

Rules for a card game state that the player with the most cards at the end of the game is the winner, and the player with the least cards goes first in the next game. After playing one game, Lee has 12 cards, Anna has 9 cards, Logan has 14 cards, and Jerome has 11 cards. Who is the winner of the game and who goes first in the second game?

1.PS.2 Interpret information correctly, identify the problem, and generate possible solutions

1.PS.2a

Helen found a dime in one pocket and spent it on a 4¢ lollipop. Then she found a nickel in the other pocket. How much money does Helen have now? Show two ways to solve the problem.

1.PS.2b

Show 2 ways to compose the addends: $1 + 2 + 2 =$

1.PS.2c

Read the story, *A Birthday for Frances*, by Russell Hoban and pose the following problem:

In the story, Frances spends 2 allowances of a nickel and 2 pennies to buy a Chompo Bar and four balls of bubble gum. How much could the price of the Chompo Bar and gumballs be?

Students will solve problems that arise in mathematics and in other contexts.

1.PS.3 Act out or model with manipulatives activities involving mathematical content from literature and/or story telling

1.PS.3a

Give each student ten counters. Read *Ten Friends* by Bruce Goldstone and have the students model the different ways to decompose 10.

1.PS.3b

Use the story *Three Pigs, One Wolf, and Seven Magic Shapes* by Grace Maccarone to introduce the students to tangrams. The story names the tangram pieces several times throughout the story as well as showing a number of entertaining pictures created from the tangram set. After reading the story, have the students use a tangram set to find the pieces that are congruent. Have them note how many single pieces have no congruency with any of the other single pieces.

1.PS.4 Formulate problems and solutions from everyday situations (e.g., counting the number of children in the class or using the calendar to teach counting)

1.PS.4a

Using a school calendar, count to the 100th day of school.

1.PS.4b

Have ten students in the class raise one hand. Count their fingers on the raised hands by fives, using skip counting.

1.PS.4c

Count the shoes of a group of 10 students by 2's.

1.PS.4d

Have twenty students stand up. In chorus, count down as one student at a time sits down.

1.PS.4e

Compare the number of students who buy lunch to the number of students who bring their lunch, up to 100 students.

Students will apply and adapt a variety of appropriate strategies to solve problems.

1.PS.5 Use informal counting strategies to find solutions

1.PS.5a

Read *The Very Hungry Caterpillar* by Eric Carle. Have students determine how many things the caterpillar ate before turning into a butterfly. Encourage them to use any method they choose (drawing, modeling with objects, counting on fingers, etc.).

1.PS.5b

Count the cubes in a bag and tell how many cubes there are.

1.PS.5c

Fill in the missing numbers below:

26, 27, _____, 29, _____

1.PS.5d

Name the number that comes before seventy. What number comes between 12 and 14? Name the number that comes after 39.

1.PS.6 Experience teacher-directed questioning process to understand problems

1.PS.6a

Ask questions such as:

- What is the problem?
- What do we need to find?
- Will our answer be larger or smaller?
- What strategy could we use to solve the problem?
- Is there another way to solve the problem?
- Does this answer make sense?

1.PS.6b

Create a pictograph of favorite colors of students. Have students answer questions related to comparing differences in categories, combining categories, or naming the categories with the most or least.

1.PS.7 Compare and discuss ideas for solving a problem with teacher and/or students to justify their thinking

1.PS.7a

Five white cats and three black cats are on a mat. Write a number sentence to show how many cats there are in all? Compare and discuss your number sentence with others.

1.PS.7b

Compare and discuss ideas for the following problem: How could you fold a square piece of paper to make:

- 4 squares?
- 2 rectangles?
- 4 rectangles?
- 2 triangles?
- 4 triangles?

1.PS.8 Use manipulatives (e.g., tiles, blocks) to model the action in problems

1.PS.8a

Show the number of base ten blocks that represent the number 37.

1.PS.8b

Give each student a handful of dominoes. Ask them to write an addition number sentence by adding the number of pips on each side of the domino. Next have the students turn their domino around and write the *turn around* fact.

1.PS.9 Use drawings/pictures to model the action in problems

1.PS.9a

Amelia has two red balloons, three blue balloons, and 1 green balloon. Rogelio has seven yellow balloons. Who has more balloons? Draw a picture and explain your answer.

1.PS.9b

Draw a picture to solve the following problem:

Juan has a dime and eleven pennies in his piggy bank. His sister has 3 nickels and 4 pennies in her bank. Who has saved the most money?

Students will monitor and reflect on the process of mathematical problem solving.

1.PS.10 Explain to others how a problem was solved, giving strategies and justifications

1.PS.10a

Give students a problem to solve. Ask students to share how they solved it. Encourage the use of different strategies by asking if anyone solved the problem another way.

1.PS.10b

Using a small ruler, measure the objects in the classroom. Share and explain findings.

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Reasoning and Proof Strand

Students will recognize reasoning and proof as fundamental aspects of mathematics.

1.RP.1 Understand that mathematical statements can be true or false

1.RP.1a

Juan has a pile of 100 cubes. Sally has 10 stacks of cubes with 10 in each stack. Juan says he has more cubes than Sally. Is he right? Explain.

1.RP.1b

Discuss the following statement:

A nickel is worth more than a dime because it is bigger.

1.RP.2 Recognize that mathematical ideas need to be supported by evidence

1.RP.2a

Show students two rows of counters, one spaced farther apart than the other. Ask the following question: Which row has more counters, or do they have the same amount? Have students explain their answers.

1.RP.2b

Create a bar graph from block pieces. Have students discuss their observations using the words: *most, least, greater than, less than, or equal to*.

1.RP.2c

Keep a weather chart for a month. Based on the data from the chart, ask students to make weather predictions using the words *likely* or *unlikely*.

1.RP.3 Investigate the use of knowledgeable guessing as a mathematical tool

1.RP.3a

Ask students to estimate the number of pieces of popcorn in a jar. Put 10 of the pieces in an identical jar and ask if they would like to change their estimates. Discuss.

1.RP.3b

How many shoe-lengths long is the classroom? Estimate, then measure.

1.RP.4 Explore guesses, using a variety of objects and manipulatives

1.RP.4a

Write an estimate for the number of cubes in a jar. Then count the cubes. What is the difference?

1.RP.4b

Give students a set of pattern block shapes. Ask them to predict which shapes will look the same after they have been flipped or rotated.

Students will develop and evaluate mathematical arguments and proofs.

1.RP.5 Justify general claims, using manipulatives

1.RP.5a

Use paper shapes to show that two shapes are congruent.

1.RP.6 Develop and explain an argument verbally or with objects

1.RP.6a

Mr. Clark wants to move a bookcase to another place in the classroom, but he wants to be sure that it will fit in the new space before he moves it. How can he do that? Develop a measuring plan and explain it to the class.

1.RP.6 Develop and explain an argument verbally or with objects

1.RP.7 Listen to and discuss claims other students make

Students will select and use various types of reasoning and methods of proof.

1.RP.8 Use trial and error strategies to verify claims

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Communication Strand

Students will organize and consolidate their mathematical thinking through communication.

1.CM.1 Understand how to organize their thought processes with teacher guidance

1.CM.1a

Have students name their favorite colors and organize the data as a pictograph.

1.CM.1b

Using a collection of real fruit or pictures of fruit, discuss ways the fruit can be sorted. Next, place overlapping loops of yarn on the floor to create a Venn diagram. Help the students understand how a Venn diagram can be used to show that something might be part of one group, two groups, or not belong in either group. Use the Venn diagram to organize the fruit. Some possible groups are: yellow fruits, fruits with peels, fruits with seeds, or round fruits, etc.

1.CM.2 Verbally support their reasoning and answer

Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others.

1.CM.3 Share mathematical ideas through the manipulation of objects, drawings, pictures, charts, and symbols in both written and verbal explanations

1.CM.3a

Have students will fill in the numbers on a 1-100 chart.

1.CM.3b

Ask students to solve the following problem using any strategy they choose:

Mr. Wong's 1st grade class has 7 children with red shirts and 6 children with blue shirts. If there are 17 children in the class, how many children do not have blue or red shirts? Share solutions with the class.

1.CM.3c

Trace one right triangle in several different positions using slides, flips, and turns.

1.CM.3d

Using cut-outs of triangles, squares, rectangles, and circles, have students fold the cut-outs to show lines of symmetry.

1.CM.3e

Take a walk around the block, around the school, or around the classroom. Have students list or draw geometric shapes that they observe. Have students then share, discuss, and organize their shapes.

Students will analyze and evaluate the mathematical thinking and strategies of others.

1.CM.4 Listen to solutions shared by other students

1.CM.4a

Have students work with a partner. Students will take turns counting by ones aloud from one number to another (e.g., count from 37 to 60).

1.CM.4b

Have students write a problem to go with: $7-2=5$. Have students listen to problems written by other students. Then ask if they agree that the problem goes with the number sentence.

1.CM.5 Formulate mathematically relevant questions

1.CM.5a

Guide students to suggest ideas for questions about themselves (e.g., favorite color, type of pet, etc) and discuss the responses.

1.CM.5b

Construct a pictograph showing the birthdays of students, graphed according to the month of their birthdays. Ask students to look at the graph and think of a question that could be answered by using the information in the graph.

1.CM.5c

Given a pictograph, have students create questions for classmates to answer.

Students will use the language of mathematics to express mathematical ideas precisely.

1.CM.6 Use appropriate mathematical terms, vocabulary, and language

1.CM.6a

Write these numbers in order from least to greatest: 72, 17, 97, 37

1.CM.6b

Is 43 greater or less than 34?

1.CM.6c

Introduce the terms *addends*, *sum*, *plus*, *plus sign*, and *equals* when teaching addition. Encourage students to use these terms when they are explaining their work for addition and subtraction problems.

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Connections Strand

Students will recognize and use connections among mathematical ideas.

1.CN.1 Recognize the connections of patterns in their everyday experiences to mathematical ideas

1.CN.1a

Complete the pattern below.

10, 20, 30, _____, _____, _____, _____, _____, _____, 100

1.CN.1b

Demonstrate patterns by clapping, drawing, or showing fabric swatches. Represent the various types of patterns AB, AAB, ABC, etc. so children begin to understand the relationships between patterns.

1.CN.1c

What comes next? Describe the pattern.

1, 3, 5, 1, 3, 5, _____, _____, _____, _____

1.CN.2 Understand the connections between numbers and the quantities they represent

1.CN.2a

How many dots do you see in this ten-frame? Write the number.

o	
o	o
o	o
o	o

1.CN.2b

Show or tell students a number from 10 to 100. Have them represent that number with objects.

1.CN.2c

Prepare a handout with words *one, two, three, ... ten* in mixed order. Have the students read the word and write the corresponding number next to it. Have students read the number and draw objects next to the word (e.g., 3 triangles next to the word *three*).

1.CN.2d

Write five number sentences using three or more addends to show a sum of eight.

1.CN.2e

Write six addition sentences that have a sum of 10.

1.CN.3 Compare the similarities and differences of mathematical ideas

1.CN.3a

Display ten blocks and show how 10 ones = 1 group of 10. Do the same for 10 tens = 1 hundred. Have the students repeat the process.

Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole.

1.CN.4 Understand how models of situations involving objects, pictures, and symbols relate to mathematical ideas

1.CN.4a

Tell students to draw 14 squares, 12 balls, 16 flowers, etc.

1.CN.4b

Given 7 blocks in a group, students will name the number of blocks. Spreading the blocks farther apart, ask the student to name the number of blocks.

1.CN.4c

Students will arrange stacks of linking cubes, each with a different number of cubes, in decreasing order.

1.CN.4d

Have students model addition and subtraction word problems with counters. Move from the concrete representation to representing the word problems with simple drawings.

1.CN.4e

Make a pictograph of favorite colors with a smiley face on the graph representing the favorite color of each student.

1.CN.5 Understand meanings of operations and how they relate to one another

1.CN.5a

Solve the problem below:

$$3 + 6 = 6 + \square$$

1.CN.6 Understand how mathematical models represent quantitative relationships

1.CN.6a

Connect stacking cubes into sets of 10 and count.

1.CN.6b

Use two colors of interlocking cubes to represent all the possible number combinations that make 10.

Students will recognize and apply mathematics in contexts outside of mathematics.

1.CN.7 Recognize the presence of mathematics in their daily lives

1.CN.7a

What is the fifth month of the year?

1.CN.7b

Using pictures from magazines or coloring books, have students identify two and three-dimensional shapes.

1.CN.7c

Sing the days of the week to a friend, using any tune.

1.CN.8 Recognize and apply mathematics to solve problems

1.CN.8a

Provide students with flyers from stores, particularly grocery and craft stores. Ask them to find at least five things that cost less than one dollar and record the item and the price using the cent notation.

1.CN.9 Recognize and apply mathematics to objects, pictures, and symbols

1.CN.9a

Give students pictures of seasonal and holiday events. Have them match the pictures to cards with the names of seasons and months printed on them.

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Representation Strand

Students will create and use representations to organize, record, and communicate mathematical ideas.

1.R.1 Use multiple representations including verbal and written language, acting out or modeling a situation, drawings, and/or symbols as representations

1.R.1a

Have students use manipulatives, drawings, or verbal explanations to determine how many rows of chairs would be needed to seat 80 children at an assembly if there are 10 chairs in each row.

1.R.1b

Using a workmat with four sections labeled *penny*, *nickel*, *dime*, and *quarter*, find and place a coin to show an example of each.

1.R.1c

Given the words *five cents*, write the numeral and symbol.

1.R.1d

Fold paper into four sections. Draw a picture of something you usually do in the morning, at noon, in the afternoon, and in the evening.

1.R.1e

Given an analog clock set to the hour, write the digital time.

1.R.2 Share mental images of mathematical ideas and understandings

1.R.2a

Distribute play money (or coins cut from a handout). Ask students the following question:

I'm thinking of three coins that equal 15¢. What are they? Have students then display the coins that answer the riddle. Students may take turns creating their own riddles for others to solve.

1.R.3 Use standard and nonstandard representations

1.R.3a

When presenting problems for students to solve, allow them to develop their own algorithms for solving the problems.

1.R.3b

Have students measure the length and width of a book or sheet of paper using paperclips, 3x5 cards, and finger lengths.

Students will select, apply, and translate among mathematical representations to solve problems.

1.R.4 Connect mathematical representations with problem solving

1.R.4a

Make up a story to match this number sentence:

$$10 - 3 = 7$$

Students will use representations to model and interpret physical, social, and mathematical phenomena.

1.R.5 Use mathematics to show and understand physical phenomena (e.g., estimate and represent the number of apples in a tree)

1.R.5a

Trace two and three-dimensional shapes. Name the shapes that are traced on the paper.

1.R.5b

Draw pictures to represent each of the four seasons and name the months included in each season.

1.R.5c

Ask students how they could measure the circumference of a pumpkin or large ball.

1.R.6 Use mathematics to show and understand social phenomena (e.g., count and represent sharing cookies between friends)

1.R.6a

Draw a picture to show that Ryan is eighth in line waiting to get ice cream, and his friend Sam is thirteenth in line.

1.R.7 Use mathematics to show and understand mathematical phenomena (e.g., draw pictures to show a story problem, show number value using fingers on your hand)

1.R.7a

Draw a picture to show that Keelin has a greater number of cookies than Kate.

1.R.7b

From a container of pattern blocks use a cup to scoop some out. Sort, then record the number of each pattern block piece on a bar graph.

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Number Sense and Operations Strand

Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.

Number Systems

1.N.1 Count the items in a collection and know the last counting word *tells* how many items are in the collection (1 to 10).

1.N.1a

Read *The Very Hungry Caterpillar* by Eric Carle. Have students determine how many things the caterpillar ate before turning into a butterfly. Encourage them to use any method they choose (drawing, modeling with objects, counting on fingers, etc.).

1.N.1b

Count the cubes in a bag and tell how many cubes there are.

1.N.2 Count out (produce) a collection of a specified size (10 to 100 items), using groups of ten

1.N.2a

Show or tell students a number from 10 to 100. Have them represent that number with objects.

1.N.2b

Connect stacking cubes into sets of 10 and count.

1.N.3 Quickly see and label with a number, collections of 1 to 10

1.N.3a

How many dots do you see in this ten-frame? Write the number.

0	
0	0
0	0
0	0

1.N.4 Count by 1's to 100

1.N.4a

Using a school calendar, count to the 100th day of school.

1.N.5a

Have students use manipulatives, drawings, or verbal explanations to determine how many rows of chairs would be needed to seat 80 children at an assembly if there are 10 chairs in each row.

1.N.5 Skip count by 10's to 100

1.N.5b

Complete the pattern below.

10, 20, 30, _____, _____, _____, _____, _____

1.N.6 Skip count by 5's to 50

1.N.6a

Have ten students in the class raise one hand. Count their fingers on the raised hands by fives, using skip counting.

1.N.7 Skip count by 2's to 20

1.N.7a

Count the shoes of a group of 10 students by 2's.

1.N.8 Verbally count from a number other than one by 1's

1.N.8a

Have students work with a partner. Students will take turns counting by ones aloud from one number to another (e.g., count from 37 to 60).

1.N.9 Count backwards from 20 by 1's

1.N.9a

Have twenty students stand up. In chorus, count down as one student at a time sits down.

1.N.10 Draw pictures or other informal symbols to represent a spoken number up to 20

1.N.10a

Tell students to draw 14 squares, 12 balls, 16 flowers, etc.

1.N.11 Identify that spacing of the same number of objects does not affect the quantity (conservation)

1.N.11a

Show students two rows of counters, one spaced farther apart than the other. Ask the following question: Which row has more counters, or do they have the same amount?

Have students explain their answers.

1.N.11b

Given 7 blocks in a group, students will name the number of blocks. Spreading the blocks farther apart, ask the student to name the number of blocks.

1.N.12 Arrange objects in size order (increasing and decreasing)

1.N.12.a

Students will arrange stacks of linking cubes, each with a different number of cubes, in decreasing order.

1.N.13 Write numbers to 100

1.N.13a

Have students will fill in the numbers on a 1-100 chart.

1.N.14 Read the number words *one, two, three...ten*

1.N.14a

Prepare a handout with words *one, two, three, ... ten* in mixed order. Have the students read the word and write the corresponding number next to it. Have students read the number and draw objects next to the word (e.g., 3 triangles next to the word *three*).

1.N.15 Explore and use place value

1.N.15a

Show the number of base ten blocks that represent the number 37.

1.N.16 Compare and order whole numbers up to 100

1.N.16a

Compare the number of students who buy lunch to the number of students who bring their lunch, up to 100 students.

1.N.16b

Write these numbers in order from least to greatest: 72, 17, 97, 37

1.N.17 Develop an initial understanding of the base ten system:

10 ones = 1 ten

10 tens = 1 hundred

1.N.17a

Display ten blocks and show how 10 ones = 1 group of 10. Do the same for 10 tens = 1 hundred. Have the students repeat the process.

1.N.17b

Juan has a pile of 100 cubes. Sally has 10 stacks of cubes with 10 in each stack. Juan says he has more cubes than Sally. Is he right? Explain.

1.N.18 Use a variety of strategies to compose and decompose one-digit numbers

1.N.18a

Give each student ten counters. Read *Ten Friends* by Bruce Goldstone and have the students model the different ways to decompose 10.

1.N.18b

Write five number sentences using three or more addends to show a sum of eight.

1.N.19 Understand the commutative property of addition

1.N.19a

Give each student a handful of dominoes. Ask them to write an addition number sentence by adding the number of pips on each side of the domino. Next have the students turn their domino around and write the *turn around* fact.

1.N.19b

Solve the problem below:

$$3 + 6 = 6 + \square$$

1.N.20 Name the number before and the number after a given number, and name the number(s) between two given numbers up to 100 (with and without the use of a number line or a hundreds chart)

1.N.20a

Fill in the missing numbers below:

26, 27, ____, 29, ____

1.N.21 Use before, after, or between to order numbers to 100 (with or without the use of a number line)

1.N.21a

Name the number that comes before seventy. What number comes between 12 and 14? Name the number that comes after 39.

1.N.22 Use the words higher, lower, greater, and less to compare two numbers

1.N.22a

Draw a picture to show that Keelin has a greater number of cookies than Kate.

1.N.22b

Is 43 greater or less than 34?

1.N.23 Use and understand verbal ordinal terms, first to twentieth

1.N.23a

Draw a picture to show that Ryan is eighth in line waiting to get ice cream, and his friend Sam is thirteenth in line.

1.N.23b

What is the fifth month of the year?

Students will understand meanings of operations and procedures, and how they relate to one another.

Operations

1.N.24 Develop and use strategies to solve addition and subtraction word problems

1.N.24a

When presenting problems for students to solve, allow them to develop their own algorithms for solving the problems.

1.N.24b

Ask questions such as:

What is the problem?

What do we need to find?

Will our answer be larger or smaller?

What strategy could we use to solve the problem?

Is there another way to solve the problem?

Does this answer make sense?

1.N.24c

Amelia has two red balloons, three blue balloons, and 1 green balloon. Rogelio has seven yellow balloons. Who has more balloons? Draw a picture and explain your answer.

1.N.25 Represent addition and subtraction word problems and their solutions as number sentences

1.N.25a

Have students model addition and subtraction word problems with counters. Move from the concrete representation to representing the word problems with simple drawings.

1.N.25b

Five white cats and three black cats are on a mat. Write a number sentence to show how many cats there are in all? Compare and discuss your number sentence with others.

1.N.26 Create problem situations that represent a given number sentence

1.N.26a

Have students write a problem to go with: $7 - 2 = 5$. Have students listen to problems written by other students. Then ask if they agree that the problem goes with the number sentence.

1.N.26b

Make up a story to match this number sentence:

$$10 - 3 = 7$$

1.N.27 Use a variety of strategies to solve addition and subtraction problems with one- and two-digit numbers without regrouping

1.N.27a

Ask students to solve the following problem using any strategy they choose:

Mr. Wong's 1st grade class has 7 children with red shirts and 6 children with blue shirts. If there are 17 children in the class, how many children do not have blue or red shirts? Share solutions with the class

1.N.27b

Give students a problem to solve. Ask students to share how they solved it. Encourage the use of different strategies by asking if anyone solved the problem another way.

1.N.27c

Helen found a dime in one pocket and spent it on a 4¢ lollipop. Then she found a nickel in the other pocket. How much money does Helen have now? Show two ways to solve the problem.

1.N.28 Demonstrate fluency and apply addition and subtraction facts to and including 10

1.N.28a

Introduce the terms *addends*, *sum*, *plus*, *plus sign*, and *equals* when teaching addition. Encourage students to use these terms when they are explaining their work for addition and subtraction problems

1.N.28b

Write six addition sentences that have a sum of 10.

1.N.29 Understand that different parts can be added to get the same whole

1.N.29a

Use two colors of interlocking cubes to represent all the possible number combinations that make 10.

1.N.29b

Show 2 ways to compose the addends: $1 + 2 + 2 =$

1.N.30a

Ask students to estimate the number of pieces of popcorn in a jar. Put 10 of the pieces in an identical jar and ask if they would like to change their estimates. Discuss.

1.N.30b

Write an estimate for the number of cubes in a jar. Then count the cubes. What is the difference?

Students will compute accurately and make reasonable estimates.

Estimation

1.N.30 Estimate the number in a collection to 50 and then compare by counting the actual items in the collection

1.N.30a

Ask students to estimate the number of pieces of popcorn in a jar. Put 10 of the pieces in an identical jar and ask if they would like to change their estimates. Discuss.

1.N.30b

Write an estimate for the number of cubes in a jar. Then count the cubes. What is the difference?

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Algebra Strand

Students will recognize, use, and represent algebraically patterns, relations, and functions.

Patterns, Relations, and Functions

1.A.1 Determine and discuss patterns in arithmetic (what comes next in a repeating pattern, using numbers or objects)

1.A.1a

Demonstrate patterns by clapping, drawing, or showing fabric swatches. Represent the various types of patterns AB, AAB, ABC, etc. so children begin to understand the relationships between patterns.

1.A.1b

What comes next? Describe the pattern.

1, 3, 5, 1, 3, 5, ____, ____, ____, ____

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Geometry Strand

Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.

Shapes

1.G.1 Match shapes and parts of shapes to justify congruency

1.G.1a

Use paper shapes to show that two shapes are congruent.

1.G.1b

Use the story *Three Pigs, One Wolf, and Seven Magic Shapes* by Grace Maccarone to introduce the students to tangrams. The story names the tangram pieces several times throughout the story as well as showing a number of entertaining pictures created from the tangram set. After reading the story, have the students use a tangram set to find the pieces that are congruent. Have them note how many single pieces have no congruency with any of the other single pieces.

1.G.2 Recognize, name, describe, create, sort, and compare two-dimensional and three-dimensional shapes

1.G.2a

Compare and discuss ideas for the following problem: How could you fold a square piece of paper to make:

- 4 squares?
- 2 rectangles?
- 4 rectangles?
- 2 triangles?
- 4 triangles?

1.G.2b

Trace two and three-dimensional shapes. Name the shapes that are traced on the paper.

Students will apply transformations and symmetry to analyze problem solving situations.

Transformational Geometry

1.G.3 Experiment with slides, flips, and turns of two-dimensional shapes

1.G.3a

Give students a set of pattern block shapes. Ask them to predict which shapes will look the same after they have been flipped or rotated.

1.G.3b

Trace one right triangle in several different positions using slides, flips, and turns.

Students will apply coordinate geometry to analyze problem solving situations.

1.G.4a

Using cut-outs of triangles, squares, rectangles, and circles, have students fold the cut-outs to show lines of symmetry.

Coordinate Geometry

1.G.4 Identify symmetry in two-dimensional shapes

1.G.5 Recognize geometric shapes and structures in the environment

1.G.5a

Using pictures from magazines or coloring books, have students identify two and three-dimensional shapes.

1.G.5b

Take a walk around the block, around the school, or around the classroom. Have students list or draw geometric shapes that they observe. Have students then share, discuss, and organize their shapes.

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Measurement Strand

Students will determine what can be measured and how, using appropriate methods and formulas.

Units of Measurement

1.M.1 Recognize length as an attribute that can be measured

1.M.1a

Mr. Clark wants to move a bookcase to another place in the classroom, but he wants to be sure that it will fit in the new space before he moves it. How can he do that? Develop a measuring plan and explain it to the class.

1.M.1b

Discuss everyday situations in which length may need to be measured.

1.M.2 Use non-standard units (including finger lengths, paper clips, students' feet and paces) to measure both vertical and horizontal lengths

1.M.2a

Have students measure the length and width of a book or sheet of paper using paperclips, 3x5 cards, and finger lengths.

1.M.3 Informally explore the standard unit of measure, inch

1.M.3a

Using a small ruler, measure the objects in the classroom. Share and explain findings.

Students will use units to give meaning to measurements.

Units

1.M.4 Know vocabulary and recognize coins (penny, nickel, dime quarter)

1.M.4a

Discuss the following statement:

A nickel is worth more than a dime because it is bigger

1.M.4b

Using a workmat with four sections labeled *penny*, *nickel*, *dime*, and *quarter*, find and place a coin to show an example of each

1.M.5a

Provide students with flyers from stores, particularly grocery and craft stores. Ask them to find at least five things that cost less than one dollar and record the item and the price using the cent notation.

1.M.5 Recognize the cent notation as ¢

1.M.5b

Given the words *five cents*, write the numeral and symbol.

1.M.6 Use different combinations of coins to make money amounts up to 25 cents

1.M.6a

Read the story, *A Birthday for Frances*, by Russell Hoban and pose the following problem:

In the story, Frances spends 2 allowances of a nickel and 2 pennies to buy a Chompo Bar and four balls of bubble gum. How much could the price of the Chompo Bar and gumballs be?

1.M.6b

Draw a picture to solve the following problem:

Juan has a dime and eleven pennies in his piggy bank. His sister has 3 nickels and 4 pennies in her bank. Who has saved the most money?

1.M.6c

Distribute play money (or coins cut from a handout). Ask students the following question:

I'm thinking of three coins that equal 15¢. What are they? Have students then display the coins that answer the riddle. Students may take turns creating their own riddles for others to solve.

1.M.7 Recognize specific times (morning, noon, afternoon, evening)

1.M.7a

Fold paper into four sections. Draw a picture of something you usually do in the morning, at noon, in the afternoon, and in the evening.

1.M.8 Tell time to the hour, using both digital and analog clocks

1.M.8a

Given an analog clock set to the hour, write the digital time.

1.M.9 Know the days of the week and months of the year in sequence

1.M.9a

Sing the days of the week to a friend, using any tune.

1.M.10 Classify months and connect to seasons and other events

1.M.10a

Give students pictures of seasonal and holiday events. Have them match the pictures to cards with the names of seasons and months printed on them.

1.M.10b

Draw pictures to represent each of the four seasons and name the months included in each season.

Students will develop strategies for estimating measurements.

Estimation

1.M.11 Select and use non-standard units to estimate measurements

1.M.11a

Ask students how they could measure the circumference of a pumpkin or large ball.

1.M.11b

How many shoe-lengths long is the classroom? Estimate, then measure.

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Statistics and Probability Strand

Students will collect, organize, display, and analyze data.

Collection of Data

1.S.1 Pose questions about themselves and their surrounding

1.S.1a

Guide students to suggest ideas for questions about themselves (e.g., favorite color, type of pet, etc) and discuss the responses.

1.S.2 Collect and record data related to a question

1.S.2a

Have students name their favorite colors and organize the data as a pictograph.

Organization and Display of Data

1.S.3 Display data in simple pictographs for quantities up to 20 with units of one

1.S.3a

Make a pictograph of favorite colors with a smiley face on the graph representing the favorite color of each student.

1.S.4 Display data in bar graphs using concrete objects with intervals of one

1.S.4a

From a container of pattern blocks use a cup to scoop some out. Sort, then record the number of each pattern block piece on a bar graph.

1.S.5 Use Venn diagrams to sort and describe data

1.S.5a

Using a collection of real fruit or pictures of fruit, discuss ways the fruit can be sorted. Next, place overlapping loops of yarn on the floor to create a Venn diagram. Help the students understand how a Venn diagram can be used to show that something might be part of one group, two groups, or not belong in either group. Use the Venn diagram to organize the fruit. Some possible groups are: yellow fruits, fruits with peels, fruits with seeds, or round fruits, etc.

1.S.5b

Use a Venn diagram to have the students organize how many students are wearing sneakers, how many are wearing something white, and how many are wearing white sneakers.

Analysis of Data

1.S.6 Interpret data in terms of the words: most, least, greater than, less than, or equal to

1.S.6a

Rules for a card game state that the player with the most cards at the end of the game is the winner, and the player with the least cards goes first in the next game. After playing one game, Lee has 12 cards, Anna has 9 cards, Logan has 14 cards, and Jerome has 11 cards. Who is the winner of the game and who goes first in the second game?

1.S.6b

Create a bar graph from block pieces. Have students discuss their observations using the words: *most, least, greater than, less than, or equal to*.

1.S.7 Answer simple questions related to data displayed in pictographs (i.e., category with most, how many more in a category compared to another, how many all together in two categories)

1.S.7a

Create a pictograph of favorite colors of students. Have students answer questions related to comparing differences in categories, combining categories, or naming the categories with the most or least.

Students will make predictions that are based upon data analysis.

Predictions from Data

1.S.8 Discuss conclusions and make predictions in terms of the words likely and unlikely

1.S.8a

Keep a weather chart for a month. Based on the data from the chart, ask students to make weather predictions using the words *likely* or *unlikely*.

1.S.9 Construct a question that can be answered by using information from a graph

1.S.9a

Construct a pictograph showing the birthdays of students, graphed according to the month of their birthdays. Ask students to look at the graph and think of a question that could be answered by using the information in the graph.

1.S.9b

Given a pictograph, have students create questions for classmates to answer.

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